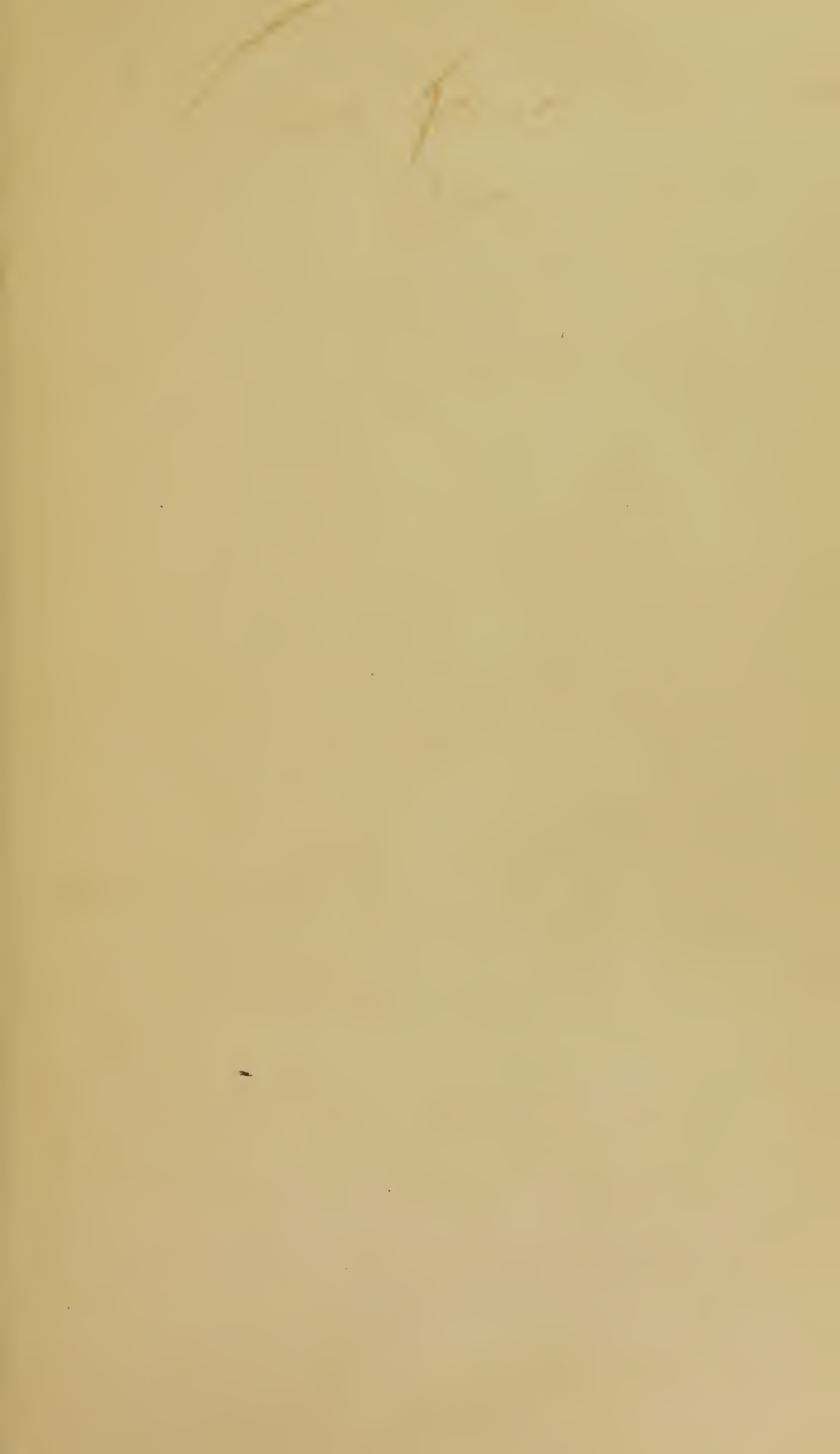




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THE
BULLION DEALER'S GUIDE.

BY GEORGE W. EDELMAN,

DEPUTY TREASURER U. S. ASSAY OFFICE, NEW-YORK.

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RECOMMENDATIONS OF THE WORK.

MR. GEO. W. EDELMAN having exhibited to us his work, entitled "THE BULLION DEALER'S GUIDE," we take great pleasure, from our knowledge of his thorough acquaintance with the subjects of which it treats, in recommending it to Merchants, Bankers, and all who have dealings in the precious metals, as the most valuable and correct work of the kind ever published.

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Dealers in Bullion frequently apply at this Office for information relative to the subjects presented in the following Tables. This Treatise has been prepared to meet this demand, with the hope that it may contribute to the benefit of all parties concerned. From the favorable reception by the business community of the first edition, the author feels warranted in issuing a *second* containing additional matter.

For "OPINIONS OF THE PRESS" on the first edition, see page 39.

U. S. ASSAY OFFICE, NEW-YORK, }
December, 1868. }

INTRODUCTION.

THE various changes in the precious metals after they have been taken from the mines, resulting from their being melted, refined or coined, render it important, to the DEALER IN BULLION, to understand how to determine its value when put into any of these forms; he is thereby enabled to choose that form which will yield him the most profitable return.

As the requisite information for this purpose can be obtained from the following tables, and their explanatory notes, it will suffice, in introducing this work to the public, to note their

CONTENTS.

TABLE A exhibits the weight of fine silver bars, from $997\frac{1}{2}$ to 999 thousandths, payable for a silver deposit of 1000 ounces of any fineness, from $749\frac{1}{2}$ to 949 thousandths, after deducting the charges for refining. The explanatory notes will enable one to calculate what will be the yield of any other fineness in fine silver.

TABLE B presents a comparative view of the net proceeds of a silver deposit, payable in fine silver bars, silver dollars, or silver coins.

TABLE C indicates the gain or loss resulting from parting the silver contained in gold bars of California, Colorado, Montana, &c.

TABLE D gives the weights of all United States coins, from the establishment of the Mint, and the periods when they were authorized by Acts of Congress.

TABLES E and F present a statement of the weight, fineness and value of foreign gold and silver coins.

TABLE G gives a comparison of the United States Mint method of notation of the fineness of bullion with that of the British.

TABLE H gives the equivalents in francs of the pound sterling at various premiums.

TABLE I exhibits the gross values of 1000 ounces of gold and of silver bullion at various degrees of fineness.

TABLE J shows the equivalents in gold coins at various premiums, *advancing by eighths of one per cent.*, of \$10000 in currency.

TABLE K gives the value of United States gold coins in British Pounds Sterling at various rates of premium, and *vice versa*.

At the close of the tables there will be found—

1st. A formula useful to the MANUFACTURERS OF SILVERWARE.

2d. The ratio of weight to value furnishing rules for calculating gold and silver.

3d. Observations in regard to the value and the *true par* of unparted gold bars at San Francisco, California.

4th. Remarks relative to the rates of exchange between San Francisco and New-York, and between New-York and London, as connected with the value of unparted gold bars at San Francisco.

5th. Short methods of calculating gold and silver, &c.

6th. Comparison of Spanish, French and English weights, as they relate to coins.

The author embraces this opportunity to acknowledge his indebtedness to Messrs. Eugene Kelly & Co., for the requisite information relative to the subject of exchange presented in the 4th Section.

EXPLANATIONS.

I. DEALERS IN BULLION AND MANUFACTURERS OF SILVERWARE can ascertain what *quantity* of fine silver may be obtained for a silver deposit of inferior quality by referring to this table, and noticing the weight set opposite to the given fineness.

II. In the case of any *intermediate* fineness, or of those *above or below*, it will be found sufficiently accurate, for practical purposes, to increase or diminish the quantity *one ounce* for every thousandth, according as it is above or below the fineness in the table.

III. The following are the charges for refining coppery silver, ductile and not containing gold, in order to return fine stamped bars.

979½thousandths and above,	½ ct. per oz. gross.
949½ " to 979 thousandths,	1 ct. " " "
749½ " to 949 "	2 cts. " " "
600 " to 749 "	2½ cts. " " "
Under 600thousandths,	3 cts. " " "

Silver under 600thousandths is frequently *base and not ductile*, in which case there is an additional charge of ½ ct. to 3 cts. per ounce gross, according to condition.

IV. As the weights in the table are obtained after deducting 2 cts. per ounce gross on deposits of finenesses between 749½thousandths and 949thousandths, it is obvious that the variation from this charge, in the case of deposits of a fineness above 949thousandths or below 749½thousandths, will increase or diminish the *weight derived* from the table.

The following rule will serve in finding the *new weight*. After ascertaining from the table, in the mode explained above, the quantity of fine silver payable for a silver deposit, add thereto 7.74 ounces for deposits of finenesses from 949½thousandths to 979thousandths, and 11.61 ounces for those above 979thousandths. Subtract proportionate weights in the case of silver deposits of a fineness below 749½thousandths, equal to 3.87 ounces for each variation of ½ cent per oz. gross.

TABLE A.

Table showing the weight of FINE SILVER BARS payable at the U. S. Assay Office, New-York, and the U. S. Mint, Philadelphia, to depositors for 1000 ounces of Coppery Silver of the following finenesses, *ductile and not containing Gold*, after deducting 2 cents per ounce gross for refining and $\frac{1}{2}\%$ for coinage on charges.

1000 Ounces at 750thous. will yield	FINE SILVER BARS.							
	1000ths. 997 $\frac{1}{2}$.		1000ths. 998.		1000ths. 998 $\frac{1}{2}$.		1000ths. 999.	
	OUNCES.	DEC.	OUNCES.	DEC.	OUNCES.	DEC.	OUNCES.	DEC.
	736	29	735	92	735	55	735	18
" 760 " " "	746	31	745	94	745	57	745	19
" 770 " " "	756	34	755	96	755	58	755	20
" 780 " " "	766	36	765	98	765	59	765	21
" 790 " " "	776	39	775	99	775	60	775	22
" 800 " " "	786	41	786	02	785	62	785	23
" 810 " " "	796	44	796	04	795	64	795	24
" 820 " " "	806	46	806	06	805	65	805	25
" 830 " " "	816	49	816	08	815	67	815	26
" 840 " " "	826	51	826	09	825	68	825	27
" 850 " " "	836	54	836	12	835	70	835	28
" 860 " " "	846	56	846	14	845	72	845	29
" 870 " " "	856	59	856	16	855	73	855	30
" 880 " " "	866	61	866	18	865	74	865	31
" 890 " " "	876	64	876	20	875	76	875	32
" 900 " " "	886	66	886	22	885	77	885	33
" 910 " " "	896	69	896	24	895	79	895	34
" 920 " " "	906	72	906	26	905	80	905	35
" 930 " " "	916	74	916	28	915	82	915	36
" 940 " " "	926	76	926	30	925	83	925	37

E X P L A N A T I O N S .

I. The figures in the *first* column of this Table are the same as those in the *last* column of Table A. The explanations presented in that case are therefore applicable to this.

II. As the Assay Office and the Mint pay for silver deposits in fine bars, dollars, or silver coins, it is important for the depositor to know what form of payment will give him the best return, when he disposes of the proceeds for gold coins or currency.

Example :

The average weight of 1000 Mexican dollars (as per Table F) is 866 ounces @ 901thousandths. 1000 ounces of this fineness will yield in fine silver 886.33 ounces @ 999thousandths.

or in silver dollars.....	\$1159.11
or in silver coins.....	1226.36

As the weight of the Mexican dollar is .866 of an ounce, the yield of 1000 Mexican dollars can be found by multiplying the above results by .866.

By observing the above method one can readily determine the yield in fine silver bars, dollars, or silver coins of any other coins mentioned in Table F, or of any silver bullion whose weight and fineness are known.

III. In deposits of the above fineness, when the market rate for fine silver is \$1.35 per oz. in gold, silver dollars must bring $103\frac{23}{100}$, and silver coins $97\frac{56}{100}$ per hundred dollars, in order to produce a similar value. A knowledge of the market rates of these different forms of silver serves, therefore, to decide which mode of payment should be asked for, when a deposit is presented at the Assay Office or at the U. S. Mint.

IV. In the series of finenesses in this Table and extending to 949thousandths, add *one ounce* to the weight of fine silver bars *for every intermediate thousandth*, $\$1.28\frac{6}{10}$ to the amount of silver dollars, and $\$1.36\frac{1}{2}$ to the amount of silver coins. Silver coins are calculated at $\$1.22\frac{1}{2}$ per standard ounce.

V. When silver dollars or silver coins are wanted for a silver deposit under 750 thousandths fine, the amount returnable therefor cannot be derived from the Table, as in this case there are charges for toughening or refining in addition to the coinage charge.

TABLE B.

Table showing the amount payable at the U. S. Assay Office, New-York, and the U. S. Mint, Philadelphia, in FINE SILVER BARS, SILVER DOLLARS, or SILVER COINS, for 1000 ounces of Coppery Silver, ductile and not containing Gold, after deducting 2 cents per oz. gross for fine bars, and $\frac{1}{2}\%$ for coinage of silver dollars.

	FINE SILVER BARS. 999thous. Fine.		SILVER DOLLARS.		SILVER COIN.	
	OUNCES.	DEC.	DOLLARS.	CTS.	DOLLARS.	CTS.
1000 ounces at 750thous. will yield	735	18	964	85	1020	83
“ “ “ 760 “ “ “	745	19	977	71	1034	44
“ “ “ 770 “ “ “	755	20	990	58	1048	05
“ “ “ 780 “ “ “	765	21	1003	44	1061	67
“ “ “ 790 “ “ “	775	22	1016	31	1075	28
“ “ “ 800 “ “ “	785	23	1029	17	1088	89
“ “ “ 810 “ “ “	795	24	1042	04	1102	50
“ “ “ 820 “ “ “	805	25	1054	90	1116	11
“ “ “ 830 “ “ “	815	26	1067	77	1129	72
“ “ “ 840 “ “ “	825	27	1080	63	1143	33
“ “ “ 850 “ “ “	835	28	1093	50	1156	94
“ “ “ 860 “ “ “	845	29	1106	36	1170	55
“ “ “ 870 “ “ “	855	30	1119	22	1184	17
“ “ “ 880 “ “ “	865	31	1132	09	1197	78
“ “ “ 890 “ “ “	875	32	1144	95	1211	39
“ “ “ 900 “ “ “	885	33	1157	82	1225	00
“ “ “ 910 “ “ “	895	34	1170	68	1238	61
“ “ “ 920 “ “ “	905	35	1183	55	1252	22
“ “ “ 930 “ “ “	915	36	1196	41	1265	83
“ “ “ 940 “ “ “	925	37	1209	28	1279	44

EXPLANATIONS.

I. Unparted gold bars received from California, Colorado, Montana, and other mining regions, having been assayed at those places, have the weight, fineness and *gold* value stamped on them. These bars are regarded as consisting of $994\frac{1}{2}$ or 995 parts of gold and silver to every 1000 parts of weight. It is necessary to separate these metals before they are coined or manufactured into fine gold bars.

II. When the value of the silver parted exceeds the charges, a *gain* upon the value stamped on the bars accrues to the depositor, but a *loss* arises when the charges exceed the value of the silver.

Table C exhibits the percentage of gain or loss thus occasioned (*expressed in gold coins*), on all finenesses from 701thousandths to 937thousandths, the highest point at which the silver parted will pay all the charges when payment is made for the deposit *in fine gold bars*: 877thousandths is the highest point in the ease of payment in *coins*.

III. The calculations are made only for the *whole* numbers of the various finenesses; gold bars that are stamped with a fineness embracing the *half* thousandth, contain the same amount of silver as those of the fineness of the next whole thousandth. Thus the complement of silver for $700\frac{1}{2}$ thousandths is 294thousandths, the same as that for 701thousandths.

IV. To determine how much an invoice of unparted gold bars will yield in gold coins: find the average fineness of the bars, and multiply their gross value by the percentage of gain or loss set opposite the said fineness in the Table; the product will show the difference of value caused by converting the said bullion into coin. When payment is made in fine gold bars instead of coins, the net result shows an improvement of $43\frac{85}{100}$ cents per \$100, inasmuch as the charge for coinage is 50 cents per \$100, while that for fine bars is 6 cents per \$100 on that portion only of the deposit which is refined.

EXAMPLES.

The gross value of an invoice of unparted gold bars, weighing 4260.98 ounces at 828thousandths, is \$72,932.12. At this fineness the Table shows a *gain* of $40\frac{63}{100}$ cents per \$100, payable in gold coins, or \$296.32; equivalent to $84\frac{48}{100}$ per \$100, payable in fine gold bars, or \$616.13.

An unparted gold bar, weighing 100 ounces at 930thousandths, is stamped \$1922.48. At this fineness the Table shows a loss, if paid in coins, of $38\frac{6}{10}$ cents per \$100, but a gain of $5\frac{1}{4}$ cents per \$100 if paid in fine gold bars.

Whenever, therefore, fine gold bars command in the market the same value as coins, or even *three-eighths* per cent. discount as compared with coins, it will be found for the interest of depositors to receive fine gold bars in payment of their deposits.

V. The amount of silver contained in unparted gold bars sometimes falls short of the complement. In such cases, after obtaining the gain or loss by the method described, modify the result by allowing $12\frac{9}{10}$, or about 13 cents, in every 100 ounces for each thousandth of silver short.

TABLE C.

TABLE showing the *gain or loss*, per \$100, on coinage of GOLD BULLION CONTAINING SILVER, after paying the following charges: For parting, 4 cents per ounce gross on all finenesses below 801thousandths, and 5 cents on those above; for silver alloy, $\frac{1}{10}$ th of standard weight of gold at 129 cents, and for coinage 50 cents per \$100 gross value of gold. \$1.22 $\frac{1}{2}$ is allowed for each standard ounce of silver parted, which is equivalent, at 95 cents, the average market rate of silver coins, to \$1.16 $\frac{3}{4}$ per standard ounce in gold.

GAIN.			GAIN.			GAIN.			GAIN.			GAIN.		
Fineness.	Cents.	Dec.	Fineness.	Cents.	Dec.	Fineness.	Cents.	Dec.	Fineness.	Cents.	Dec.	Fineness.	Cents.	Dec.
1000ths.			1000ths.			1000ths.			1000ths.			1000ths.		
701	178	42	721	154	55	741	131	97	761	110	58	781	90	29
702	177	19	722	153	39	742	130	87	762	109	53	782	89	29
703	175	96	723	152	23	743	129	77	763	108	49	783	88	30
704	174	74	724	151	07	744	128	68	764	107	45	784	87	31
705	173	52	725	149	92	745	127	59	765	106	42	785	86	33
706	172	31	726	148	77	746	126	50	766	105	39	786	85	36
707	171	10	727	147	63	747	125	42	767	104	37	787	84	39
708	169	90	728	146	49	748	124	35	768	103	35	788	83	42
709	168	70	729	145	36	749	123	28	769	102	34	789	82	46
710	167	51	730	144	24	750	122	21	770	101	33	790	81	50
711	166	32	731	143	12	751	121	13	771	100	30	791	80	52
712	165	13	732	142	00	752	120	05	772	99	27	792	79	55
713	163	94	733	140	88	753	118	98	773	98	25	793	78	59
714	162	75	734	139	76	754	117	92	774	97	24	794	77	63
715	161	57	735	138	64	755	116	86	775	96	24	795	76	67
716	160	39	736	137	52	756	115	81	776	95	25	796	75	71
717	159	21	737	136	40	757	114	76	777	94	26	797	74	76
718	158	04	738	135	29	758	113	71	778	93	27	798	73	82
719	156	87	739	134	18	759	112	67	779	92	28	799	72	89
720	155	71	740	133	08	760	111	63	780	91	29	800	71	97

NOTE.—Table C can be modified so as to show the *gain or loss*, per \$100, on coinage, at the *San Francisco Mint*, of gold bullion containing silver, by allowing for the difference in parting charges, as explained on page 31.

TABLE C (Continued.)

LOSS.			LOSS.			LOSS.			LOSS.			LOSS.		
Fineness.	Cents.	Dec.	Fineness.	Cents.	Dec.	Fineness.	Cents.	Dec.	Fineness.	Cen's.	Dec.	Fineness.	Cents.	Dec.
1000ths.			1000ths.			1000ths.			1000ths.			1000ths.		
878		53	890	9	69	902	18	66	914	27	38	926	35	86
879	1	30	891	10	45	903	19	41	915	28	10	927	36	55
880	2	06	892	11	21	904	20	15	916	28	81	928	37	24
881	2	84	893	11	97	905	20	88	917	29	52	929	37	92
882	3	62	894	12	72	906	21	61	918	30	22	930	38	60
883	4	39	895	13	47	907	22	33	919	30	92	931	39	31
884	5	16	896	14	22	908	23	05	920	31	62	932	40	02
885	5	93	897	14	96	909	23	76	921	32	34	933	40	72
886	6	69	898	15	70	910	24	47	922	33	05	934	41	42
887	7	45	899	16	43	911	25	21	923	33	76	935	42	11
888	8	20	900	17	16	912	25	94	924	34	46	936	42	79
889	8	95	901	17	91	913	26	66	925	35	16	937	43	46

EXPLANATIONS.

All the gold coins and the silver dollar (including the parts of the dollar coined prior to April, 1853), are legal tenders in payment of debts for any sum whatever. Of the silver coins issued since April, 1853, those of less denomination than the dollar are legal tenders to the amount of \$5, with the exception of the 3-cent piece, which is a legal tender only to the amount of 30 cents. The 5-cent nickel coin is a legal tender to the amount of \$1, and the 3-cent piece to the amount of 60 cents. The cent and 2-cent piece, composed of copper, zinc and tin, are legal tenders to the value of 4 cents only.

The value of *silver coins* differs from that of the *silver dollar* in the following particulars:—

1. The *weight* of the dollar is 412.5 grains; that of two half-dollars of the present coinage is 384 grains; being a reduction of $6\frac{1}{11}$ per cent. At this rate \$1.25 of silver coins of a lower denomination than the dollar are manufactured at the United States Mint from one ounce of standard metal, and \$1.16 $\frac{4}{11}$ in silver dollars.

2. The *price* paid in silver coins at the Mint, and at this Office, for one ounce of standard silver is \$1.22 $\frac{1}{2}$, and \$1.15 $\frac{43}{55}$ per ounce is paid in silver dollars.

3. When the silver dollar is exchanged for gold coins at *par*, silver coins (the fractions of a dollar) are worth 93 $\frac{1}{11}$ cents in gold; but as the dollar usually commands a premium of 2 to 2 $\frac{1}{2}$ per cent. in gold, the average value of silver coins in gold is 95 cents. These rates being affected by the law of supply and demand, are necessarily somewhat variable.

TABLE D.

WEIGHT AND FINENESS OF U. S. COINS FROM 1792 TO THE PRESENT PERIOD.

PERIODS When the various Standards of Coins were authorized.	GOLD.							Weight of \$1000. OUNCES DEC
	DOUBLE EAGLE.	EAGLE.	HALF EAGLE.	THREE DOLLARS.	QUARTER EAGLE.	DOLLAR.	FINENESS.	
	Grains.	Grains.	Grains.	Grains Dec.	Grains Dec.	Grains Dec.	1000ths.	
April, 1792. to July 31, 1834.		270.	135.		67.5		916 $\frac{2}{3}$	56.25
August, 1834, to January 18, 1837.		258.	129.		64.5		899 $\frac{9}{40}$	53.75
January, 1837, to Present Period.		258.	129.		64.5		900	"
March, 1849, to Present Period.	516					25.8	900	"
February 1853, to Present Period.				77.4			900	"
	SILVER.							OUNCES.
	DOLLAR.	HALF DOLLAR.	QUARTER DOLLAR.	DIME.	HALF DIME.	THREE CENTS.	FINENESS.	
	Grains Dec	Grains Dec.	Grains Dec.	Grains Dec.	Grains Dec.	Grains Dec.	1000ths.	
April, 1792, to January 18, 1837.	416.	208.	104.	41.6	20.8		892 $\frac{4}{10}$	866 $\frac{2}{3}$
January, 1837, to Present Period.	412.5						900	859 $\frac{3}{8}$
January, 1837, to April, 1853.		206.25	103.125	41.25	20.625		900	"
March, 1851, to April, 1853.						12.375	750	"
April, 1853, to Present Period.		192.	96.	38.4	19.2	11.52	900	800
	COPPER, &C.							
	CENT.			TWO CENTS.	THREE CENTS.	FIVE CENTS.	HALF CENT.	
	Copper.	Cop. & Nickel	Cop. Zinc and Tin.	Cop. Zinc and Tin.	Cop. & Nickel	Cop. & Nickel	Copper.	
	GRAINS.	GRAINS.	GRAINS.	GRAINS.	GRAINS.	GRAINS DEC.	GRAINS.	
April, 1792.....	264.						132.	Coinage dis- continued.
January, 1793.....	208.						104.	
January, 1796.....	168.						84.	
February, 1857.....		72						Present Coinage.
April, 1864.....			48	96				
March, 1865.....					30			
May, 1866.....						77.16		

A STATEMENT
OF
FOREIGN GOLD AND SILVER COINS,

PREPARED BY THE DIRECTOR OF THE MINT, TO ACCOMPANY HIS ANNUAL
REPORT, IN PURSUANCE OF ACT OF FEBRUARY 21, 1857.

EXPLANATORY REMARKS.

The first column embraces the names of the countries where the coins are issued ; the second contains the names of the coin, only the principal denominations being given. The other sizes are proportional ; and when this is not the case, the deviation is stated.

The third column expresses the weight of a single piece in fractions of the troy ounce, carried to the thousandth, and in a few cases to the ten-thousandth of an ounce. This method is preferable to expressing the weight in grains for commercial purposes, and corresponds better with the terms of the Mint. It may be readily transferred to

TABLE E.
GOLD COINS.

COUNTRY.	DENOMINATIONS.	Weight.		Fineness.	Value.	Value after Deduction.
		Oz.	Dec.			
Australia . . .	Pound of 1852	0.281		916.5	\$5.32.37	\$5.29.71
" . . .	Sovereign of 1855-60 . . .	0.256.5		916	4.85.69	4.83.26
Austria . . .	Ducat	0.112		986	2.28.28	2.27.04
" . . .	Sovereign	0.363		900	6.75.35	6.71.98
" . . .	New Union Crown (assumed)	0.357		900	6.64.19	6.60.87
Belgium . . .	25 Francs	0.254		899	4.72.03	4.69.67
Bolivia . . .	Doubloon	0.867		870	15.59.25	15.51.46
Brazil . . .	Twenty Milreis	0.575		917.5	10.90.57	10.85.12
Central America	Two Escudos	0.209		853.5	3.68.75	3.66.91
" . . .	Four Reals	0.027		875	0.48.8	0.48.6
*Chili . . .	Old Doubloon	0.867		870	15.59.26	15.51.47
" . . .	Ten Pesos	0.492		900	9.15.35	9.10.78
Denmark . . .	Ten Thaler	0.427		895	7.90.01	7.86.06
Ecuador . . .	Four Escudos	0.433		844	7.55.46	7.51.69
England . . .	Pound or Sovereign, new	0.256.7		916.5	4.86.34	4.83.91
† " . . .	" " average	0.256.2		916	4.85.12	4.82.69
France . . .	Twenty Francs, new . . .	0.207.5		899	3.85.62	3.83.69
" . . .	" " average	0.207		899	3.84.69	3.82.77
Germany, North	Ten Thaler	0.427		895	7.90.01	7.86.06
" . . .	" " Prussian	0.427		903	7.97.07	7.93.09
" . . .	Krone (Crown)	0.357		900	6.64.20	6.60.88
" . . . South	Ducat	0.112		986	2.28.28	2.27.14
Greece . . .	Twenty Drachms	0.185		900	3.44.19	3.42.47
Hindustan . .	Mohur	0.374		916	7.08.18	7.04.64
Italy . . .	Twenty Lire	0.207		898	3.84.26	3.82.34
Japan . . .	Old Cobang	0.362		568	4.44.00	4.41.8
‡ " . . .	New "	0.289		572	3.57.6	3.55.8
Mexico . . .	Doubloon, average	0.867.5		866	15.52.98	15.45.22
" . . .	" new	0.867.5		870.5	15.61.05	15.53.25
" . . .	Twenty Pesos (Max.) . . .	1.086		875	19.64.33	19.54.5
Naples . . .	Six Ducati, new	0.245		996	5.04.43	5.01.91
Netherland . .	Ten Guilders	0.215		899	3.99.56	3.97.57
New Granada .	Old Doubloon, Bogota . . .	0.868		870	15.61.06	15.53.26
" . . .	" " Popayan	0.867		858	15.37.75	15.30.07
" . . .	Ten Pesos	0.525		891.5	9.67.51	9.62.68
Peru . . .	Old Doubloon	0.867		868	15.55.67	15.47.90
" . . .	Twenty Soles	1.035		898	19.21.30	19.11.7
Portugal . . .	Gold Crown	0.308		912	5.80.66	5.77.76
Prussia . . .	New Union Crown (assumed)	0.357		900	6.64.19	6.60.87
Rome . . .	2½ Scudi, new	0.140		900	2.60.47	2.59.17
Russia . . .	Five Roubles	0.210		916	3.97.64	3.95.66
Spain (See Chili)	100 Reals	0.268		896	4.96.39	4.93.91
" . . .	80 "	0.215		869.5	3.86.44	3.84.51
Sweden . . .	Ducat	0.111		975	2.23.72	2.22.61
Tunis . . .	25 Piastres	0.161		900	2.99.54	2.98.05
Turkey . . .	100 "	0.231		915	4.36.93	4.34.75
Tuscany . . .	Seguin	0.112		999	2.31.29	2.30.14

* The system of Coinage is the same as that received from Spain.

† The legal weight and fineness of the Sovereign are slightly higher than the above, making its full value \$4.86.65.
(See page 22).

‡ The Cobang being nearly half silver, the values given as above include the value of the silver.

weight in grains by the following rule: Remove the decimal point; from one-half deduct four per cent. of that half, and the remainder will be grains.

The fourth column expresses the fineness in thousandths, *i. e.*, the number of parts of pure gold or silver in 1000 parts of the coin.

The fifth and sixth columns of the first table express the valuation of gold. In the fifth is shown the value as compared with the legal contents, or amount of fine gold in our coin. In the sixth is shown the value as paid at the Mint after the uniform deduction of one-half of one per cent. The former is the value for any other purposes than re-coinage, and especially for the purpose of comparison; the latter is the value in exchange for our coins at the Mint.

For the silver there is no fixed legal valuation, the law providing for shifting the price according to the condition of demand and supply. The present price of standard silver is $122\frac{1}{2}$ cents per ounce, at which rate the values in the fifth column of the second table are calculated. In a few cases, where the coins could not be procured, the data are *assumed* from the legal rates, and so stated.

NOTE.—These Tables of foreign gold and silver coins are taken from the last Annual Report of the Director of the United States Mint, by special permission.

TABLE F.—SILVER COINS.

COUNTRY.	DENOMINATIONS.	Weight.		Fineness.	Value.
		Oz.	Dec.	THOUS.	
Austria . . .	Old Rix Dollar	0.902		833	\$1.02.27
“	Old Scudo	0.836		902	1.02.64
“	Florin before 1858	0.451		833	51.14
“	New Florin	0.397		900	48.63
“	New Union Dollar	0.596		900	73.01
“	Maria Theresa Dollar, 1780	0.895		838	1.02.08
Belgium . . .	Five Francs	0.803		897	98.04
Bolivia. . . .	New Dollar	0.643		903.5	79.07
“	Half Dollar	0.432		667	39.22
Brazil	Double Milreis	0.820		918.5	1.02.53
Canada	Twenty Cents	0.150		925	18.87
Central America	Dollar	0.866		850	1.00.19
Chili	Old Dollar	0.864		908	1.06.79
“	New Dollar	0.801		900.5	98.17
China, Hong-Kong	Dollar, English (assumed) . .	0.866		901	106.20
“	Ten Cents	0.087		901	10.60
Denmark . . .	Two Rigsdaler	0.927		877	1.10.65
England	Shilling, new	0.182.5		924.5	22.96
“	Shilling, average	0.178		925	22.41
France	Five Franc, average	0.800		900	98.00
“	*Two Franc, 1867-8	0.320		835	36.40
Germany, North	Thaler before 1857	0.712		750	72.67
“	New Thaler	0.595		900	72.89
“	Florin before 1857	0.340		900	41.65
“	New Florin (assumed) . . .	0.340		900	41.65
Greece	Five Drachms	0.719		900	88.08
Hindustan . . .	Rupée	0.374		916	46.62
Japan	Itzebu	0.279		991	37.63
“	New Itzebu	0.279		890	33.80
Mexico	Dollar, new	0.867.5		903	1.06.62
“	Dollar, average	0.866		901	1.06.20
“	Peso of Maximilian	0.861		902.5	1.05.77
Naples	Scudo	0.844		830	95.34
Netherlands . .	2½ Guilders	0.804		944	1.03.31
Norway	Specie Daler	0.927		877	1.10.65
New Granada . .	Dollar of 1857	0.803		896	97.92
Peru	Old Dollar	0.866		901	1.06.20
“	Dollar of 1858	0.766		909	94.77
“	Half Dollar 1835 and 1838	0.433		650	38.31
“	Sol	0.802		900	98.24
Prussia	Thaler before 1857	0.712		750	72.68
“	New Thaler	0.595		900	72.89
Rome	Scudo	0.864		900	1.05.84
Russia	Rouble	0.667		875	79.44
Sardinia	Five Lire	0.800		900	98.00
Spain	New Pistareen	0.166		899	20.31
Sweden	Rix Dollar	1.092		750	1.11.48
Switzerland . .	Two Francs	0.323		899	39.52
Tunis	Five Piastres	0.511		898.5	62.49
Turkey	Twenty “	0.770		830	86.98
Tuscany	Florin	0.220		925	27.70

* Less pieces in proportion.

EXPLANATIONS.

As the English accounts of gold bullion are made out in carats and their subdivisions, it will be found convenient for Bankers, in examining these accounts, to have a ready means of comparing this method of notation of fineness, with that of the United States by thousandths. Table G furnishes the facility for making this comparison.

It appears from this Table that from $\frac{1}{8}$ th of a grain to $11\frac{7}{8}$ ths grains, the equivalent in thousandths is in each case denoted by a *whole number and a decimal*; the first *exact* thousandths is the equivalent of 12 grains, and thus every multiple of 12 grains will produce exact thousandths.

The *whole numbers* of grains are placed at the top of the Table, and their equivalents in thousandths on the first line beneath; the *eighths of grains* are at the left side and their equivalents in thousandths in the column adjoining; those thousandths in the body of the Table are the combined equivalents of whole grains and eighths; thus, 8 grains = 83.33thousandths; $\frac{3}{8}$ grains = 3.91thousandths; $10\frac{5}{8}$ grains = 110.68thousandths.

A few examples will explain the manner of using the Table:

Required to express, in thousandths, the British terms, worseness $5\frac{1}{4}$ grains; betterness $1\frac{1}{8}$ grains.

$88 - 5\frac{1}{4} = 82\frac{3}{4} :$	$\begin{array}{r} 72 \text{ grains} = 750 \text{ thousandths.} \\ 10\frac{3}{4} \text{ " } = 111.98 \text{ " } \end{array}$
	$\underline{\underline{82\frac{3}{4} \text{ grains} = 861.98 \text{ thousandths.}}}$
$88 + 1\frac{1}{8} = 89\frac{1}{8} :$	$\begin{array}{r} 84 \text{ grains} = 875 \text{ thousandths.} \\ 5\frac{1}{8} \text{ " } = 53.39 \text{ " } \end{array}$
	$\underline{\underline{89\frac{1}{8} \text{ grains} = 928.39 \text{ thousandths.}}}$

Required to express, in British terms, the finenesses 763thousandths, and $997\frac{1}{2}$ thousandths.

$\begin{array}{r} 750 = 72 \text{ grains.} \\ 13 = 1\frac{1}{4} \text{ " } \end{array}$	$\begin{array}{r} 875 = 84 \text{ grains.} \\ 122\frac{1}{2} = 11\frac{6}{8} \text{ " } \end{array}$
$\underline{\underline{\begin{array}{r} 763 = 73\frac{1}{4} \text{ grains.} \\ 14\frac{3}{4} \text{ " } \text{ W}^{\circ}. \end{array}}}$	$\underline{\underline{\begin{array}{r} 997\frac{1}{2} = 95\frac{6}{8} \text{ grains.} \\ 7\frac{6}{8} \text{ " } \text{ Br.} \end{array}}}$

NOTE.—It is proper to observe that the carat is divided into 32 equal parts; and as a carat is equivalent to $41\frac{2}{3}$ thousandths, each 32d is equal to about $1\frac{3}{10}$ thousandth. Mint assaying extends to one-half of one thousandth; its nicety is, therefore, greater than that of the carat system.

T A B L E G.

Comparison of the UNITED STATES MINT method of notation of the fineness of Bullion by *thousandths*, with that of the BRITISH by *carats*, *carat-grains* and *eighths* or *thirty-seconds* of a carat.

Eighths of a Grain.		1	2	3	4	5	6	7	8	9	10	11	
		Grain.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	
1600ths 1000ths. 1000ths. 1000ths. 1000ths. 1000ths. 1000ths. 1000ths.		10.42	20.83	31.25	41.67	52.08	62.50	72.92	83.33	93.75	104.17	114.58	
	18	1.30	11.72	22.14	32.55	42.97	53.39	63.80	74.22	84.64	95.05	105.47	115.89
	24	2.60	13.02	23.44	33.85	44.27	54.69	65.10	75.52	85.94	96.35	106.77	117.19
	36	3.91	14.32	24.74	35.16	45.57	55.99	66.41	76.82	87.24	97.66	108.07	118.49
	48	5.21	15.62	26.04	36.46	46.87	57.29	67.71	78.12	88.54	98.96	109.37	119.79
	60	6.51	16.93	27.34	37.76	48.18	58.59	69.01	79.43	89.84	100.26	110.68	121.09
	72	7.81	18.23	28.65	39.06	49.48	59.90	70.31	80.73	91.15	101.56	111.98	122.40
	84	9.11	19.53	29.95	40.36	50.78	61.20	71.61	82.03	92.45	102.86	113.28	123.70
		EQUIVALENTS.			12	24	36	48	60	72	84	96	
		Carats.	Grains.	1000ths.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	
English Standard.	22	88	916 ² / ₃										
U. States Standard.	21.6	86.4	900	1000ths.	1000ths.	1000ths.	1000ths.	1000ths.	1000ths.	1000ths.	1000ths.	1000ths.	
Pure.	24	96	1000	125	250	375	500	625	750	875	1000		

NOTE.—The standard of gold and silver coins of France and the United States is 900thousandths, that of the gold coins of Britain is 22 carats, or 916 $\frac{2}{3}$ thousandths, and that of their silver coins 925 thousandths, or 222 dwts. per lb. The equivalent of 1 dwt. is 4 $\frac{1}{6}$ thousandths.
The British method of reporting is to denote the fineness as *betterness* or *worseness*, according as it is above or below the standard.

EXPLANATIONS.

I. From a pound troy of gold, 22 carats or $916\frac{2}{3}$ thousandths fine, $46\frac{29}{40}$ sovereigns are coined, making the full weight of the sovereign 123.27448 grains = 113.001605 grains of fine gold, and therefore the value of the sovereign is \$4.86.6563.

II. From one kilogramme,* 3100 francs, in standard gold, are coined; making the full weight of the gold piece of 25 francs 8.064516 grammes = 112.008982 grains of fine gold; its value, therefore, is \$4.82.3815.

III. From this it appears the sovereign contains .8862 of 1% more gold than the 25 franc piece.

IV. From these data the following proportions, and those in Table H, are derived:

5.18262 francs = \$1.00 : 1 franc =	19.29526 cents, or 9.51566 pence.
1£ stg. @ $9\frac{4977}{10000}\%$ = $\begin{smallmatrix} \text{Frs.} & \text{Ctms.} \\ 25.22.155 \end{smallmatrix}$	= \$4.86.6563 value of the sovereign.
1£ stg. @ $8\frac{536}{1000}\%$ = 25 francs	= \$4.82.3815.
1 oz. of British standard gold	= \$18.94.918174 or $77/10\frac{1}{2}$ d. @ $9\frac{4977}{10000}\%$.
1 oz. of U. S. or French standard gold	= \$18.60.465116.

V. French exchange, compared with American, is at a premium, when \$100 in gold will buy less than $518\frac{1}{4}$ francs, and at a discount when it will buy more. The quotations, instead of expressing a per-centage, indicate the number of francs that can be thus purchased.

French Exchange, compared with English, is at a discount when it requires more than 2522 francs 15 centimes to buy £100 stg., and at a premium when a less amount is required for this purpose.

VI. In determining the equivalent in francs of the pound sterling at a *mixed premium*, say at $10\frac{3}{8}\%$, add together the amount in the Table set opposite to £1@10%,

	Francs. Centimes.
viz.	25.33.726
and that opposite to the $\frac{3}{8}$ ths of one per cent., viz.	08.638
the sum will be the equivalent in francs of £1@ $10\frac{3}{8}\%$	25.42.364

* NOTE.—The kilogramme is equal to 15432.34874 troy grains.

TABLE H.

EQUIVALENTS IN FRANCS OF THE POUND STERLING AT VARIOUS PREMIUMS.

£ Stg.	Premium.	Francs.	Centimes.	Eighths of One Per Cent.	£ Stg.	Centimes.
1	@ 1 Per Cent	=	23.26.421			
1	" 2	"	= 23.49.454	$\frac{1}{8}$ th of 1	=	02.879
1	" 3	"	= 23.72.488	$\frac{1}{4}$ th "	1	= 05.758
1	" 4	"	= 23.95.522	$\frac{3}{8}$ ths "	1	= 08.638
1	" 5	"	= 24.18.556	$\frac{1}{2}$ "	1	= 11.517
1	" 6	"	= 24.41.590	$\frac{5}{8}$ ths "	1	= 14.396
1	" 7	"	= 24.64.624	$\frac{3}{4}$ ths "	1	= 17.275
1	" 8	"	= 24.87.658	$\frac{7}{8}$ ths "	1	= 20.155
1	" 9	"	= 25.10.692	$\frac{8}{8}$ ths "	1	= 23.034
1	" 10	"	= 25.33.726			
1	" 11	"	= 25.56.760			
1	" 12	"	= 25.79.794			

Francs.	Centimes.	£ Stg.	Premium.	Francs.	Centimes.	£ Stg.	Premium.
24.00	=	1 @	4.195 Per Cent.	25.00	=	1 @	8.536 Per Cent.
24.05	=	1 "	4.412 "	25.05	=	1 "	8.753 "
24.10	=	1 "	4.629 "	25.10	=	1 "	8.970 "
24.15	=	1 "	4.846 "	25.15	=	1 "	9.187 "
24.20	=	1 "	5.063 "	25.20	=	1 "	9.404 "
24.25	=	1 "	5.280 "	25.25	=	1 "	9.622 "
24.30	=	1 "	5.497 "	25.30	=	1 "	9.839 "
24.35	=	1 "	5.714 "	25.35	=	1 "	10.056 "
24.40	=	1 "	5.931 "	25.40	=	1 "	10.273 "
24.45	=	1 "	6.148 "	25.45	=	1 "	10.490 "
24.50	=	1 "	6.366 "	25.50	=	1 "	10.707 "
24.55	=	1 "	6.583 "	25.55	=	1 "	10.924 "
24.60	=	1 "	6.800 "	25.60	=	1 "	11.141 "
24.65	=	1 "	7.017 "	25.65	=	1 "	11.358 "
24.70	=	1 "	7.234 "	25.70	=	1 "	11.575 "
24.75	=	1 "	7.451 "	25.75	=	1 "	11.792 "
24.80	=	1 "	7.668 "	25.80	=	1 "	12.009 "
24.85	=	1 "	7.885 "	25.85	=	1 "	12.226 "
24.90	=	1 "	8.102 "	25.90	=	1 "	12.443 "
24.95	=	1 "	8.319 "	25.9131	=	1 "	12.500 "

VII. The par value, in U. S. coins, of the sovereign being very nearly \$4.86 $\frac{2}{3}$, or $\frac{146}{30}$, and the par value, in francs, of the gold dollar being about 5 francs 18 $\frac{1}{4}$ centimes, these figures are sufficiently accurate for most calculations. *To find how many francs are required to purchase a sovereign, multiply the value in U. S. coins of the sovereign by the rate of French exchange.*

Suppose the rate to be 5 francs 18 $\frac{1}{4}$ centimes, this $\times \frac{146}{30} = 25.22\frac{15}{100}$,^{Frs. Ctms.}
the equivalent of £1@9 $\frac{1}{2}$ % premium.

The value in francs of the gold dollar is found by dividing the value in francs of the sovereign by its value in U. S. coins, thus: $25.2215 \div \frac{146}{30} = \text{fr. } 5.18\frac{1}{4}$.

VIII. Besides using these tables for transactions in *direct* Exchange, one who desires to make a *remittance to Paris* can do so by procuring a *sterling bill* and forwarding it to Paris for disposal there. This is called *indirect* Exchange, and it is usually found preferable to purchasing a draft on Paris. The following example will illustrate this view:

On June 30th the *franc* quotation in New-York was.....fr. 5.12 $\frac{1}{2}$ to fr. 5.13 $\frac{1}{8}$

And the quotation for *sterling* was 10 $\frac{1}{8}$ % to 10 $\frac{1}{4}$ %

On July 16th, the date when the remittance of 30th June

reached Paris, *sterling* was worth.....fr. 25.16 to fr. 25.21

Now £ stg. 10000@10 $\frac{1}{4}$ % cost.....\$49000

While a sterling bill of this sum would be worth, at the
average franc rate in Paris, viz., fr. 25.18 $\frac{1}{2}$^{Francs.} 251850

But \$49000@fr.5.12 $\frac{1}{2}$ in New-York would yield only.... 251125

*Showing a gain, on remitting a sterling bill to Paris for
sale there, of*..... 725

And in case this bill sold for the highest rate, the gain
would be..... 975

TABLE I.

TABLE OF THE GROSS VALUES OF 1000 OUNCES OF GOLD AND OF SILVER BULLION
OF THE FOLLOWING FINENESSES:

FINENESS.	GROSS VALUE IN GOLD.		GROSS VALUE IN SILVER.		FINENESS.	GROSS VALUE IN GOLD.		GROSS VALUE IN SILVER.	
			@ \$1.16 $\frac{4}{11}$ per Oz. Std.					@ \$1.16 $\frac{4}{11}$ per Oz. Std.	
1000ths.	Dollars.	Cts.	Dollars.	Cts.	1000ths.	Dollars.	Cts.	Dollars.	Cts.
600	12403	11	775	76	800	16537	47	1034	34
610	12609	83	788	69	810	16744	19	1047	27
620	12816	54	801	62	820	16950	91	1060	20
630	13023	26	814	55	830	17157	63	1073	13
640	13229	98	827	47	840	17364	35	1086	06
650	13436	70	840	40	850	17571	06	1098	99
660	13643	42	853	33	860	17777	78	1111	92
670	13850	14	866	26	870	17984	50	1124	85
680	14056	85	879	19	880	18191	21	1137	78
690	14263	57	892	12	890	18397	93	1150	71
700	14470	29	905	05	900	18604	65	1163	64
710	14677	00	917	98	910	18811	37	1176	57
720	14883	72	930	91	920	19018	09	1189	49
730	15090	44	943	84	930	19224	81	1202	42
740	15297	16	956	77	940	19431	52	1215	35
750	15503	88	969	70	950	19638	24	1228	28
760	15710	60	982	63	960	19844	96	1241	21
770	15917	31	995	56	970	20051	68	1254	14
780	16124	03	1008	48	980	20258	40	1267	07
790	16330	75	1021	41	990	20465	12	1280	00
					1000	20671	83	1292	93

NOTE.—In the case of every *intermediate* thousandth, or of those *above* or *below*, add \$20.672 to the Gold and \$1.29 to the Silver value.

TABLE J.

TABLE SHOWING THE EQUIVALENTS IN GOLD COINS AT VARIOUS PREMIUMS,
ADVANCING BY EIGHTHS OF ONE PER CENT., OF \$10000 IN CURRENCY.

GOLD COINS. Premium.			GOLD COINS. Premium.			GOLD COINS. Premium.			GOLD COINS. Premium.		
Dollars.	Cents.	Per Cent.	Dollars.	Cents.	Per Cent.	Dollars.	Cents.	Per Cent.	Dollars.	Cents.	Per Cent.
8000	00	@ 25	7774	54	@ 28 $\frac{5}{8}$	7561	44	@ 32 $\frac{1}{4}$	7359	71	@ 35 $\frac{7}{8}$
7992	01	" 25 $\frac{1}{8}$	7766	99	" 28 $\frac{3}{4}$	7554	30	" 32 $\frac{3}{8}$	7352	94	" 36
7984	03	" 25 $\frac{1}{4}$	7759	46	" 28 $\frac{7}{8}$	7547	17	" 32 $\frac{1}{2}$	7346	19	" 36 $\frac{1}{8}$
7976	07	" 25 $\frac{3}{8}$	7751	94	" 29	7540	06	" 32 $\frac{5}{8}$	7339	45	" 36 $\frac{1}{4}$
7968	13	" 25 $\frac{1}{2}$	7744	43	" 29 $\frac{1}{8}$	7532	96	" 32 $\frac{3}{4}$	7332	72	" 36 $\frac{3}{8}$
7960	20	" 25 $\frac{5}{8}$	7736	94	" 29 $\frac{1}{4}$	7525	87	" 32 $\frac{7}{8}$	7326	01	" 36 $\frac{1}{2}$
7952	29	" 25 $\frac{3}{4}$	7729	47	" 29 $\frac{3}{8}$	7518	80	" 33	7319	30	" 36 $\frac{5}{8}$
7944	39	" 25 $\frac{7}{8}$	7722	01	" 29 $\frac{1}{2}$	7511	74	" 33 $\frac{1}{8}$	7312	61	" 36 $\frac{3}{4}$
7936	51	" 26	7714	56	" 29 $\frac{5}{8}$	7504	69	" 33 $\frac{1}{4}$	7305	94	" 36 $\frac{7}{8}$
7928	64	" 26 $\frac{1}{8}$	7707	13	" 29 $\frac{3}{4}$	7497	66	" 33 $\frac{3}{8}$	7299	27	" 37
7920	79	" 26 $\frac{1}{4}$	7699	71	" 29 $\frac{7}{8}$	7490	64	" 33 $\frac{1}{2}$	7292	62	" 37 $\frac{1}{8}$
7912	96	" 26 $\frac{3}{8}$	7692	31	" 30	7483	63	" 33 $\frac{5}{8}$	7285	97	" 37 $\frac{1}{4}$
7905	14	" 26 $\frac{1}{2}$	7684	92	" 30 $\frac{1}{8}$	7476	64	" 33 $\frac{3}{4}$	7279	34	" 37 $\frac{3}{8}$
7897	33	" 26 $\frac{5}{8}$	7677	54	" 30 $\frac{1}{4}$	7469	65	" 33 $\frac{7}{8}$	7272	73	" 37 $\frac{1}{2}$
7889	55	" 26 $\frac{3}{4}$	7670	18	" 30 $\frac{3}{8}$	7462	69	" 34	7266	12	" 37 $\frac{5}{8}$
7881	77	" 26 $\frac{7}{8}$	7662	84	" 30 $\frac{1}{2}$	7455	73	" 34 $\frac{1}{8}$	7259	53	" 37 $\frac{3}{4}$
7874	02	" 27	7655	50	" 30 $\frac{5}{8}$	7448	79	" 34 $\frac{1}{4}$	7252	95	" 37 $\frac{7}{8}$
7866	27	" 27 $\frac{1}{8}$	7648	18	" 30 $\frac{3}{4}$	7441	86	" 34 $\frac{3}{8}$	7246	38	" 38
7858	55	" 27 $\frac{1}{4}$	7640	88	" 30 $\frac{7}{8}$	7434	94	" 34 $\frac{1}{2}$	7239	82	" 38 $\frac{1}{8}$
7850	83	" 27 $\frac{3}{8}$	7633	59	" 31	7428	04	" 34 $\frac{5}{8}$	7233	27	" 38 $\frac{1}{4}$
7843	14	" 27 $\frac{1}{2}$	7626	31	" 31 $\frac{1}{8}$	7421	15	" 34 $\frac{3}{4}$	7226	74	" 38 $\frac{3}{8}$
7835	46	" 27 $\frac{5}{8}$	7619	05	" 31 $\frac{1}{4}$	7414	27	" 34 $\frac{7}{8}$	7220	22	" 38 $\frac{1}{2}$
7827	79	" 27 $\frac{3}{4}$	7611	80	" 31 $\frac{3}{8}$	7407	41	" 35	7213	71	" 38 $\frac{5}{8}$
7820	14	" 27 $\frac{7}{8}$	7604	56	" 31 $\frac{1}{2}$	7400	56	" 35 $\frac{1}{8}$	7207	21	" 38 $\frac{3}{4}$
7812	50	" 28	7597	34	" 31 $\frac{5}{8}$	7393	72	" 35 $\frac{1}{4}$	7200	72	" 38 $\frac{7}{8}$
7804	88	" 28 $\frac{1}{8}$	7590	13	" 31 $\frac{3}{4}$	7386	89	" 35 $\frac{3}{8}$	7194	24	" 39
7797	27	" 28 $\frac{1}{4}$	7582	94	" 31 $\frac{7}{8}$	7380	07	" 35 $\frac{1}{2}$	7187	78	" 39 $\frac{1}{8}$
7789	68	" 28 $\frac{3}{8}$	7575	76	" 32	7373	27	" 35 $\frac{5}{8}$	7181	33	" 39 $\frac{1}{4}$
7782	10	" 28 $\frac{1}{2}$	7568	59	" 32 $\frac{1}{8}$	7366	48	" 35 $\frac{3}{4}$	7174	89	" 39 $\frac{3}{8}$

TABLE J (Continued).

GOLD COINS. Premium.			GOLD COINS. Premium.			GOLD COINS. Premium.			GOLD COINS. Premium.		
Dollars.	Cents.	Per Cent.	Dollars.	Cents.	Per Cent.	Dollars.	Cents.	Per Cent.	Dollars.	Cents.	Per Cent.
7168	46	@ 39 $\frac{1}{2}$	7036	06	@ 42 $\frac{1}{8}$	6908	46	@ 44 $\frac{3}{4}$	6785	41	@ 47 $\frac{3}{8}$
7162	04	" 39 $\frac{5}{8}$	7029	88	" 42 $\frac{1}{4}$	6902	50	" 44 $\frac{7}{8}$	6779	66	" 47 $\frac{1}{2}$
7155	64	" 39 $\frac{3}{4}$	7023	71	" 42 $\frac{3}{8}$	6896	55	" 45	6773	92	" 47 $\frac{5}{8}$
7149	24	" 39 $\frac{7}{8}$	7017	54	" 42 $\frac{1}{2}$	6890	61	" 45 $\frac{1}{8}$	6768	19	" 47 $\frac{3}{4}$
7142	86	" 40	7011	39	" 42 $\frac{5}{8}$	6884	68	" 45 $\frac{1}{4}$	6762	47	" 47 $\frac{7}{8}$
7136	49	" 40 $\frac{1}{8}$	7005	25	" 42 $\frac{3}{4}$	6878	76	" 45 $\frac{3}{8}$	6756	76	" 48
7130	12	" 40 $\frac{1}{4}$	6999	13	" 42 $\frac{7}{8}$	6872	85	" 45 $\frac{1}{2}$	6751	06	" 48 $\frac{1}{8}$
7123	77	" 40 $\frac{3}{8}$	6993	01	" 43	6866	95	" 45 $\frac{5}{8}$	6745	36	" 48 $\frac{1}{4}$
7117	44	" 40 $\frac{1}{2}$	6986	90	" 43 $\frac{1}{8}$	6861	06	" 45 $\frac{3}{4}$	6739	68	" 48 $\frac{3}{8}$
7111	11	" 40 $\frac{5}{8}$	6980	80	" 43 $\frac{1}{4}$	6855	18	" 45 $\frac{7}{8}$	6734	00	" 48 $\frac{1}{2}$
7104	80	" 40 $\frac{3}{4}$	6974	72	" 43 $\frac{3}{8}$	6849	32	" 46	6728	34	" 48 $\frac{5}{8}$
7098	49	" 40 $\frac{7}{8}$	6968	64	" 43 $\frac{1}{2}$	6843	46	" 46 $\frac{1}{8}$	6722	69	" 48 $\frac{3}{4}$
7092	20	" 41	6962	58	" 43 $\frac{5}{8}$	6837	61	" 46 $\frac{1}{4}$	6717	04	" 48 $\frac{7}{8}$
7085	92	" 41 $\frac{1}{8}$	6956	52	" 43 $\frac{3}{4}$	6831	77	" 46 $\frac{3}{8}$	6711	41	" 49
7079	65	" 41 $\frac{1}{4}$	6950	48	" 43 $\frac{7}{8}$	6825	94	" 46 $\frac{1}{2}$	6705	78	" 49 $\frac{1}{8}$
7073	39	" 41 $\frac{3}{8}$	6944	44	" 44	6820	12	" 46 $\frac{5}{8}$	6700	17	" 49 $\frac{1}{4}$
7067	14	" 41 $\frac{1}{2}$	6938	42	" 44 $\frac{1}{8}$	6814	31	" 46 $\frac{3}{4}$	6694	56	" 49 $\frac{3}{8}$
7060	90	" 41 $\frac{5}{8}$	6932	41	" 44 $\frac{1}{4}$	6808	51	" 46 $\frac{7}{8}$	6688	96	" 49 $\frac{1}{2}$
7054	67	" 41 $\frac{3}{4}$	6926	41	" 44 $\frac{3}{8}$	6802	72	" 47	6683	38	" 49 $\frac{5}{8}$
7048	46	" 41 $\frac{7}{8}$	6920	42	" 44 $\frac{1}{2}$	6796	94	" 47 $\frac{1}{8}$	6677	80	" 49 $\frac{3}{4}$
7042	25	" 42	6914	43	" 44 $\frac{5}{8}$	6791	17	" 47 $\frac{1}{4}$	6672	23	" 49 $\frac{7}{8}$
									6666	67	" 50

NOTE.—If the equivalent in gold coins at a given premium be required for any other amount in currency than the even thousand, use the figures in the table as a multiplier of said amount.

EXAMPLE: Required, the amount of gold coins which at 33 $\frac{3}{8}$ % premium will produce \$15672 43.

$$15672.48 \times 74\frac{3}{4} = \$11728.70.$$

— See Short Method of Multiplication, page 35

EXPLANATIONS.

DEALERS in Sterling Exchange, by the use of this Table, can find the value in U. S. gold coins of a bill of exchange for any amount of pounds, shillings and pence, and can also ascertain how many pounds sterling a given amount of gold coins will buy.

A merchant wishes to purchase a bill of exchange for any *round* number of pounds—£5000 or £10000—when the rate is at $9\frac{5}{8}\%$. By reference to the table, it appears that £1000 at this rate cost \$4872.22 $\frac{2}{5}$, therefore £5000 will cost \$24361.11, and £10000 will cost \$48722.22. If he desire to purchase a Sterling bill for remittance abroad, in settlement of a balance of account amounting to \$28765.46 in gold, he refers to the table showing the number of pounds @ $9\frac{5}{8}\%$ that produce \$10000 in gold coins, which he finds to be £2052.452; multiplying this by 28765.46 he ascertains that the bill of exchange must be drawn for £5903 19s. 5d.

It is proposed to find the value in gold of a Sterling bill for £5903 19s. 5d. @ $9\frac{5}{8}\%$. The table shows that the value of £1000 is \$4872.22.2; this multiplied by 5903.971 amounts to \$28765.46.

Reference to the tabular statement below furnishes an easy method of converting the decimals of a pound into shillings and pence and *vice versa*.

For a short method of multiplication, where decimals are involved, see page 35.

When accounts are stated in *currency* it becomes necessary, before buying a Sterling bill, to determine the equivalent of the currency in gold coins at the market rate or premium. This can be done by referring to Table J.

TABLE SHOWING THE VALUE OF SHILLINGS AND PENCE IN DECIMALS OF A POUND.

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
0	.000	.050	.100	.150	.200	.250	.300	.350	.400	.450	.500	.550	.600	.650	.700	.750	.800	.850	.900	.950
1	.004	.054	.104	.154	.204	.254	.304	.354	.404	.454	.504	.554	.604	.654	.704	.754	.804	.854	.904	.954
2	.008	.058	.108	.158	.208	.258	.308	.358	.408	.458	.508	.558	.608	.658	.708	.758	.808	.858	.908	.958
3	.012	.062	.112	.162	.212	.262	.312	.362	.412	.462	.512	.562	.612	.662	.712	.762	.812	.862	.912	.962
4	.017	.067	.117	.167	.217	.267	.317	.367	.417	.467	.517	.567	.617	.667	.717	.767	.817	.867	.917	.967
5	.021	.071	.121	.171	.221	.271	.321	.371	.421	.471	.521	.571	.621	.671	.721	.771	.821	.871	.921	.971
6	.025	.075	.125	.175	.225	.275	.325	.375	.425	.475	.525	.575	.625	.675	.725	.775	.825	.875	.925	.975
7	.029	.079	.129	.179	.229	.279	.329	.379	.429	.479	.529	.579	.629	.679	.729	.779	.829	.879	.929	.979
8	.033	.083	.133	.183	.233	.283	.333	.383	.433	.483	.533	.583	.633	.683	.733	.783	.833	.883	.933	.983
9	.037	.087	.137	.187	.237	.287	.337	.387	.437	.487	.537	.587	.637	.687	.737	.787	.837	.887	.937	.987
10	.042	.092	.142	.192	.242	.292	.342	.392	.442	.492	.542	.592	.642	.692	.742	.792	.842	.892	.942	.992
11	.046	.096	.146	.196	.246	.296	.346	.396	.446	.496	.546	.596	.646	.696	.746	.796	.846	.896	.946	.996

The shillings are given at the top, and the pence at the left hand.

TABLE K.

TABLE SHOWING THE VALUE OF U. S. GOLD COINS IN BRITISH POUNDS STERLING
AT VARIOUS RATES OF PREMIUM, AND VICE VERSA.

Amount of Pounds Sterling at various Premiums equivalent to \$10000 of U.S. Gold Coins		Premium.	Amount of U. S. Gold Coins equivalent to 1000 Pounds Sterling at the Subjoined Premiums.		Amount of Pounds Sterling at Various Premiums equivalent to \$10000 of U.S. Gold Coins		Premium.	Amount of U.S. Gold Coins equivalent to 1000 Pounds Sterling at the Subjoined Premiums.	
£ Stg.	Dec.		Dollars.	Cents.	£ Stg.	Dec.		Dollars.	Cents.
2112	676	@ 6 $\frac{1}{2}$ %	4733	33.3	2054	795	@ 9 $\frac{1}{2}$	4866	66.6
2110	199	" 6 $\frac{5}{8}$ "	4738	88.8	2052	452	" 9 $\frac{5}{8}$ "	4872	22.2
2107	728	" 6 $\frac{3}{4}$ "	4744	44.4	2050	114	" 9 $\frac{3}{4}$ "	4877	77.7
2105	263	" 6 $\frac{7}{8}$ "	4750	00	2047	782	" 9 $\frac{7}{8}$ "	4883	33.3
2102	804	" 7 "	4755	55.5	2045	455	" 10 "	4888	88.8
2100	350	" 7 $\frac{1}{8}$ "	4761	11.1	2043	133	" 10 $\frac{1}{8}$ "	4894	44.4
2097	902	" 7 $\frac{1}{4}$ "	4766	66.6	2040	816	" 10 $\frac{1}{4}$ "	4900	00
2095	460	" 7 $\frac{3}{8}$ "	4772	22.2	2038	505	" 10 $\frac{3}{8}$ "	4905	55.5
2093	023	" 7 $\frac{1}{2}$ "	4777	77.7	2036	199	" 10 $\frac{1}{2}$ "	4911	11.1
2090	592	" 7 $\frac{5}{8}$ "	4783	33.3	2033	898	" 10 $\frac{5}{8}$ "	4916	66.6
2088	167	" 7 $\frac{3}{4}$ "	4788	88.8	2031	603	" 10 $\frac{3}{4}$ "	4922	22.2
2085	747	" 7 $\frac{7}{8}$ "	4794	44.4	2029	312	" 10 $\frac{7}{8}$ "	4927	77.7
2083	333	" 8 "	4800	00	2027	027	" 11 "	4933	33.3
2080	925	" 8 $\frac{1}{8}$ "	4805	55.5	2024	747	" 11 $\frac{1}{8}$ "	4938	88.8
2078	522	" 8 $\frac{1}{4}$ "	4811	11.1	2022	472	" 11 $\frac{1}{4}$ "	4944	44.4
2076	125	" 8 $\frac{3}{8}$ "	4816	66.6	2020	202	" 11 $\frac{3}{8}$ "	4950	00
2073	733	" 8 $\frac{1}{2}$ "	4822	22.2	2017	937	" 11 $\frac{1}{2}$ "	4955	55.5
2071	346	" 8 $\frac{5}{8}$ "	4827	77.7	2015	677	" 11 $\frac{5}{8}$ "	4961	11.1
2068	966	" 8 $\frac{3}{4}$ "	4833	33.3	2013	423	" 11 $\frac{3}{4}$ "	4966	66.6
2066	590	" 8 $\frac{7}{8}$ "	4838	88.8	2011	173	" 11 $\frac{7}{8}$ "	4972	22.2
2064	220	" 9 "	4844	44.4	2008	929	" 12 "	4977	77.7
2061	856	" 9 $\frac{1}{8}$ "	4850	00	2006	689	" 12 $\frac{1}{8}$ "	4983	33.3
2059	497	" 9 $\frac{1}{4}$ "	4855	55.5	2004	454	" 12 $\frac{1}{4}$ "	4988	88.8
2057	143	" 9 $\frac{3}{8}$ "	4861	11.1	2002	225	" 12 $\frac{3}{8}$ "	4994	44.4
					2000	00	" 12 $\frac{1}{2}$ "	5000	00

NOTE.—In the third and sixth columns the Decimal of the Cents is a *repetend* in every instance.

I.

FORMULA TO ENABLE THE MANUFACTURERS OF SILVERWARE TO OBTAIN A COMPOUND OF ANY DESIRED FINENESS, BY THE MIXTURE OF FINE SILVER WITH SILVER OF AN INFERIOR QUALITY.

Obtain the difference between the two higher finenesses, and divide by the difference between the two lower; the quotient indicates the number of times each ounce of the silver to be raised in fineness is required to be used with one ounce of fine silver.

Example—Required to raise a quantity of silver of the fineness of 867 thousandths to 900 thousandths, by the mixture with it of fine silver at 999 thousandths.

Difference between the two higher finenesses.....99 thousandths.

Difference between the two lower finenesses.....33 thousandths.

$99 \div 33 = 3$: From this it appears that one ounce of fine silver at 999 thousandths will raise three ounces of silver at 867 thousandths, so that the compound will consist of four ounces at 900 thousandths.

II.

MODE OF VALUATION.

According to law, the standard gold of the United States is so constituted, that in 1000 parts by weight 900 shall be of pure gold, and 100 of an alloy composed of copper and silver.

387 ounces of pure gold are worth \$3,000, and 99 ounces of pure silver are worth \$128. (See Table D.) These relations furnish the following proportions, from which are readily derived the subjoined rules:—

FOR GOLD.

As 1000 : $\frac{8000}{387}$, or as 99000 : 128 :: the given weight multiplied by its particular fineness in thousandths : the value of said weight.

FOR SILVER.

As 1000 : $\frac{128}{99}$, or as 387 : 8 :: the given weight multiplied by its particular fineness in thousandths : the value of said weight.

RULES

To find the value in United States money of any number of troy ounces of gold or silver, the weight and fineness being given.

FOR GOLD.

Multiply the given weight by the fineness and by 8, and divide the product by 387.

FOR SILVER.

* Multiply the given weight by the fineness and by 123, and divide the product by 99000.

* Note.—The mode of valuation for silver coins is given on page 14.

III.

OBSERVATIONS IN REGARD TO THE VALUE AND THE TRUE PAR OF UNPARTED
GOLD BARS AT SAN FRANCISCO, CALIFORNIA.

It has already been stated on page 10, that these bars contain silver, and that the expenses of separating it from the gold, exceed, in some cases, the value of the silver, while in others a profit accrues from the operation. Table C has been prepared for the purpose of enabling those, who buy and sell unparted gold bars, to ascertain what amount can be obtained for them in gold coins or in fine gold bars, at the United States Assay Office, New-York, and the United States Mint, Philadelphia.

It may be observed here, that the value thus ascertained, is the proper value of these bars at San Francisco, whenever they are taken as a remittance to New-York. A quantity of grains, lumps, dust, or amalgam, having been presented at the Branch Mint, at San Francisco, or at some private Assay office, and the charges for melting and assaying having been paid, the depositor receives the net proceeds in bars made of the gold thus deposited; these bars have their weight, fineness and the value of *the gold alone* stamped upon them.

To determine what they are worth, it is necessary to inquire the use to be made of them; if they are to be exported to New-York, their value in gold coins at New-York is the problem to be solved; but if they are to be converted into coins at San Francisco, then, after calculating their net value by the Table as already explained, the result must be modified by taking into the account the difference of parting charge, which is the only element in the calculation at San Francisco, which differs from that at the U. S. Mint, or at the U. S. Assay Office, New-York.

EXAMPLE.

1 bar, weighing 601 ounces, @ 803 thousandths ^{Gross Value.} = \$9,976.29.

At this fineness, the gain (per Table C,) is 63 $\frac{1}{10}$ cents per \$100, or \$62.95.

Now, if this bar is taken for exportation, then its value in gold coins is \$9,976.29 + 62.95 = \$10,039.24, but if put into the Br. Mint at San Francisco, to be converted into coin there, where the charge for parting is 11 cents per ounce, the net value must be diminished 6 cents per ounce of the 601 ounces, or \$36.06.

By reference to Table C, it appears that at the fineness of 877 thousandths or 876 $\frac{1}{2}$ thousandths, both of which are considered as containing the same proportion of silver or 118 thousandths, the value of this silver is about the same as the charges for parting and coinage at New-York, so that, in view of the preceding observations, it is evident that this fineness is the TRUE PAR.

Finenesses *below* 877 thousandths contain more silver, and are, therefore, worth a PREMIUM; while those above, containing less silver, are at a DISCOUNT as compared with bars of 877 thousandths.

Each thousandth shows a different premium or discount, and the proportionate difference varies in the several grades of fineness: thus, between 704 thousandths and 714 thousandths the average variation per thousandth in the gain is $1\frac{1}{2}$ cent; between 770 thousandths and 780 thousandths it is 1 cent; between 810 thousandths and 820 thousandths it is $\frac{9}{10}$ cent; between 860 thousandths and 870 thousandths it is $\frac{4}{5}$ cent. It is evident, therefore, that no *average rate* of gain or loss per thousandth will equally apply to all the grades of fineness; but the actual value of any unparted gold bar must be determined by the use of the Table in the manner already explained.

Having thus found what the unparted gold bar is worth when converted into coin at New-York, it would seem to be a rule, alike just to the seller and the purchaser of these bars, *to place such a premium upon their ascertained value as the market rate of exchange prevailing at the time of the transaction requires.* This causes every fineness to express its exact character, and obviates the exceptionable custom of employing a *fictitious par*.

IV.

OBSERVATIONS IN REGARD TO THE RATES OF EXCHANGE BETWEEN SAN FRANCISCO AND NEW-YORK, AND BETWEEN NEW-YORK AND LONDON, AS CONNECTED WITH THE VALUE OF UNPARTED GOLD BARS AT SAN FRANCISCO.

Applying the rule stated at the close of the previous chapter for estimating the value of unparted gold bars by comparing them with the true par, the inquiry arises, what rate may be paid for them in lieu of buying a draft on New-York?

Suppose a lot of bars, weighing 10,000 ounces, averaging 840 thousandths fine, and stamped value \$173,643.41, are purchased as a remittance to New-York. These bars are worth, per Table C, $30\frac{3}{10}$ cents per \$100 premium, making the value of them \$174,169.54 as the net amount they will produce in coin at the United States Assay Office, New-York, providing they contain the complement of silver. The allowance to be made for every thousandth of silver short is given on page 10.

Having thus ascertained the *par* or coin value of the bars, the holder of them may charge $\frac{1}{8}\%$ to $\frac{3}{8}\%$ premium thereon. If the purchaser pay $\frac{1}{4}\%$ premium, the bars will cost him \$435.42 additional, making their total cost at San Francisco \$174,604.96. He now ships them to New-York, paying for freight $\frac{1}{2}\%$, and $\frac{8}{10}\%$ for insurance on the stamped value, together \$2257.36, making the cost of the bars delivered at New-York.----- \$176,862 32

If the rate of sterling Exchange at New-York is below the shipping point, and the bars are, therefore, refined and *coined* there, producing.... 174,169 54

Then this amount of coin has cost----- \$2,692 78
or $1\frac{546}{1000}$ of one per cent.

But when sterling Exchange is at the shipping point, the unparted bars may be deposited at this OFFICE, refined and cast into *fine gold bars*. These, shipped to London and sold at 77s. 9d. per ounce English standard, will yield a profit of \$276.66 after paying freight $\frac{1}{8}\%$, insurance $\frac{3}{8}\%$, bankers' commission at New-York $\frac{1}{8}\%$, and $\frac{1}{16}\%$ at London, and some petty charges. This gain deducted from \$2692.78, the amount against the account at New-York, will leave \$2416.12 as the net amount of outlay, or about $1\frac{3}{8}\%$. Regarding these two transactions—the transmission of the bars from San Francisco to New-York, and thence to London—as expressing one interest, it is proper to conclude that the rate of exchange, as thus determined, between San Francisco and New-York, is $1\frac{3}{8}\%$ premium whenever exchange between New-York and London is $10\frac{1}{8}\%$.

It is obvious that any change in the items which make up the foregoing account will involve a change in the net result. Thus—if $\frac{3}{8}\%$ premium on the par value, instead of $\frac{1}{4}\%$, is charged for unparted gold bars at San Francisco, Exchange on London must bring $10\frac{1}{4}\%$; otherwise the rate of Exchange between San Francisco and New-York, as above determined, will amount to $1\frac{1}{2}\%$ premium when the sterling rate is $10\frac{1}{8}\%$.

By observing the system just explained, the imperfect and *fluctuating par* is obviated, a full allowance is made for silver contained in the bars in every instance, and the *true par* is used as the basis for a commission of $\frac{1}{8}$ to $\frac{3}{8}\%$, to be regulated by the law of demand and supply.

V.

SHORT METHODS OF CALCULATION.

FOR GOLD.

1. To Convert Weight into Value.

Multiply the weight by double the fineness, add to the product $\frac{1}{30}$ th thereof, plus $\frac{1}{129}$ th of the $\frac{1}{30}$ th, the answer will be in cents.

EXAMPLE.—What is the value of 1258 ounces at 774thousandths?

$$\begin{array}{r} 1258 \times 1548 = \quad 19473.84 \\ \quad \frac{1}{30}\text{th} \quad \quad 649.128 \\ \quad \frac{1}{129}\text{th} \quad \quad 5.032 \\ \hline \end{array}$$

ANSWER.—\$20,128.00

By this rule the value of one ounce of gold, of any fineness, may be readily determined.

EXAMPLE.—What is the value of 1 ounce at 658 $\frac{1}{2}$ thousandths?

$$\begin{array}{r} 658\frac{1}{2} \times 2 = \quad 1317 \\ \quad \frac{1}{30}\text{th} \quad \quad 43.9 \\ \quad \frac{1}{129}\text{th} \quad \quad .34 \\ \hline \end{array}$$

ANSWER.—\$13.61.24

The division by 129 being somewhat difficult, it will be found sufficiently accurate in most cases to divide by 130.

2. *To Convert Value into Standard Weight.*

Divide the value in dollars by 20, this quotient by 20, and the second quotient by 2, add the three quotients together; the answer will be in standard ounces.

EXAMPLE.—What is the weight, in standard ounces, of \$154,686.56?

$$\begin{array}{r}
 20) 154686.56 \\
 \hline
 20) \quad 7734.328 \\
 \quad 2) \quad 386.7164 \\
 \quad \quad 193.3582 \\
 \hline
 \end{array}$$

ANSWER.—ozs. 8314.4026

FOR SILVER.

1. *To Convert Weight into Dollar Value.*

Add to the weight in standard ounces $\frac{1}{11}$ th thereof, plus the $\frac{8}{10}$ th of the $\frac{1}{11}$ th, the answer will be in dollars.

EXAMPLE.—What is the value of 1268.30 standard ounces?

$$\begin{array}{r}
 1268.30 \\
 \quad \frac{1}{11}\text{th} \quad 115.30 \\
 \frac{8}{10}\text{ths of } \frac{1}{11}\text{th} \quad 92.24 \\
 \hline
 \end{array}$$

ANSWER.—\$1475.84

2. *To Convert Dollar Value into Standard Ounces.*

Subtract from the value $\frac{1}{8}$ th thereof, plus $\frac{1}{8}$ th of this quotient, the answer will be in standard ounces.

EXAMPLE.—What is the weight of \$1475.84?

$$\begin{array}{r}
 \$1475.84 \\
 \hline
 \frac{1}{8}\text{th} \quad 184.48 \\
 \frac{1}{8}\text{th} \quad 23.06 \\
 \hline
 207.54 \\
 \hline
 \end{array}$$

ANSWER.—Stand. ozs. 1268.30

TO CONVERT TROY OUNCES INTO POUNDS AVOIRDUPOIS.

Multiply the ounces by $.06\frac{2}{7}$.

EXAMPLE.—What is the weight in pounds avoirdupois of 2688 troy ounces?

$$\begin{array}{r}
 2688 \\
 \quad .06\frac{2}{7} \\
 \hline
 7)161.28 \\
 \quad 23.04 \\
 \hline
 \text{lbs. } 184.32
 \end{array}$$

It will be seen that $\frac{1}{7}$ of the product is the same as $\frac{2}{7}$ of the multiplicand.

SHORT METHOD OF MULTIPLICATION.

When the multiplicand and multiplier contain *decimals*, the *product* can be more easily obtained by reversing the figures in the multiplier.

Example. Required the equivalent in gold coins @ 33 $\frac{5}{8}$ % premium of \$15672.48 in currency? *Answer.* \$11728.70.

From Table J, it appears that \$7483.63 of gold coins, at this premium, produce \$10000 in currency, therefore, 15672.48 multiplied by .748363, the value of *one gold dollar*, will give the above answer.

OLD METHOD OF MULTIPLICATION.

$$\begin{array}{r}
 15672.48 \\
 .748363 \\
 \hline
 4701744 \\
 9403488 \\
 4701744 \\
 12537984 \\
 6268992 \\
 10970736 \\
 \hline
 \$11728.70415024
 \end{array}$$

INVERSE MULTIPLICATION.

$$\begin{array}{r}
 15672.48 \\
 3638\ 47 \\
 \hline
 10970.736 \\
 626.899 \\
 125.380 \\
 4.702 \\
 940 \\
 47 \\
 \hline
 \$11728.704
 \end{array}$$

EXPLANATION OF INVERSE MULTIPLICATION.

After reversing the figures of the multiplier, the multiplicand is first multiplied by .7, and the product is set down in the usual way, pointing off three decimals, there being two in the multiplicand and one in the multiplier. Now multiply by 4 *the next decimal*, beginning with the figure in the multiplicand directly over it, adding to the product the carrying figure derived from 4 times 8, and set down the result at the extreme right of the first product, completing the second line by continuing the multiplication of the multiplicand in the ordinary way; proceed to multiply in like manner, as shown in the example, with the remaining decimals in the multiplier, and add together the several products.

EASY MODE OF DIVIDING BY 99.

Rule. Set down the dividend, and add thereto 100th of the same to the extent of three decimals, then 100th of that quotient, and so on until the quotients are exhausted; then add these quotients together.

Example. Divide 126486.568 by 99.

$$\begin{array}{r}
 126486.568 \\
 1264.866 \\
 12.649 \\
 126 \\
 1 \\
 \hline
 \text{Answer. } 127\ 764.210
 \end{array}$$

VI.—A COMPARISON OF THE WEIGHTS EMPLOYED IN THE UNITED STATES, ENGLAND, FRANCE AND SPAIN THAT RELATE TO THE COINS OF THOSE COUNTRIES.

FRANCE.

THE metric system of measures was established in France in 1795; it is derived from the measurement of the earth. The *Metre*, which is the fundamental measure, is presumed to be the ten millionth part of a meridian line drawn from the pole to the equator, and is 39.37079 English inches.

The derivative unit of weight is the *Gramme*, which has been determined by the weight of a cubic centimetre of distilled water at its maximum density. Professor Miller ascertained that the Kilogramme is equivalent to 15432.34874 grains. The coins if accurately minted may serve also as weights. Thus 5 francs in copper, 50 in billon, 200 in standard silver, or 3100 in standard gold should weigh 1 kilogramme.

<i>French Weights.</i>		<i>Equivalents.</i>	
Milligramme (1000th of a gramme).		0.01543	troy grains.
Centigramme (100th of a gramme).		0.15432	" "
Décigramme (10th of a gramme).		1.54323	" "
Gramme (<i>unit of weight</i>).		15.43235	" "
Décagramme (10 grammes).		154.32349	" "
Hectogramme (100 grammes).		1543.23487	" "
Kilogramme (1000 grammes).		15432.34874	" "
Myriagramme (10000 grammes).		321.50726	troy ounces.
1 Franc in silver weighs . . . 5 grammes	=	.160754	" ounce.
5 Francs " weigh . . . 25 "	=	.803768	" "
5 Francs in gold " . . . 1.6129032 gramme	=	.051856	" "

SPAIN.

GOLD is weighed by the Castilian Mark of 50 Castellanos, 400 Tomines or 4800 Granos. Silver is weighed by the same Mark, but is divided into 8 Onzas, 64 Ochavas, 128 Adarmes, 384 Tomines or 4608 Granos. The Castilian Mark contains 3552 troy grains or 230.166 grammes. As this weight is equal to 7.4 ounces troy and the Mark is divided into 8 onzas, *one Spanish ounce is therefore equal to 0.925 troy ounce.*

<i>Spanish Weights.</i>			<i>Equivalents.</i>		
12 granos	make	1 tomin.	.5994	gramme or	9.25 troy grains.
3 tomines	"	1 adarme.	1.7982	" "	27.75 "
2 adarmes	"	1 ochava.	3.5963	grammes "	55.50 "
8 ochavas	"	1 onza.	28.7707	" "	444. "
8 onzas	"	1 marco.	230.1658	" "	3552. "
2 marcos	"	1 libra.	460.3315	" "	7104. "

In 1786 the standard of Gold coins was reduced from 21½ carats to 21 carats (=375 thousandths) for the different Doubloons and their divisions. There are four denominations of gold required to be of this fineness—the doubloon, the half, the quarter or pistole and the eighth or escudo. The weight should be 8½ doubloons to the Mark of Castile, or about 418 grains or 0.870½ of an ounce troy to the doubloon.* By reference to Table E of Gold Coins, it will be seen that the average weight and fineness of the Doubloon falls below its legal terms. 1000 Dollars (silver) should weigh, according to the Mint regulations, 117 marks 5 ounces, Castilian weight, equal to 870.5 troy ounces; but the average weight of this number of dollars is found to be 866 ounces.

* This would make the gross value of the doubloon \$15.75.

UNITED STATES AND ENGLAND.

The United States and English Standard Unit for Weights is the Troy Pound containing 5760 grains.

24 grains	make 1 pennyweight =	1.55517 gramme.
20 pennyweights	" 1 ounce =	31.1035 grammes.
12 ounces	" 1 pound =	373.24197 "

The legal weight of the Sovereign is 123.27448 grains @ 916 $\frac{2}{3}$ thousandths = 125.55734 grains @ 900 thousandths; that of the Half-Eagle is 129 grains and of the 5-Franc gold piece 1612.9032 milligrammes, both of these @ 900 thousandths. From these terms the following comparison is derived.

	Grains. Dec.	Oz. Dec.	Grammes. Dec.
Sovereign	= 125.55734	= 0.2615778	= 8.135984
Half-Eagle	= 129	= 0.26875	= 8.359065
25-Franc Gold Piece	= 124.45442	= 0.2592801	= 8.064516

INTERNATIONAL COINAGE SYSTEM.

This contemplates making the Sovereign, the Half-Eagle and the 25-Franc gold piece of the same weight and value. "The weight of the present 5-Franc gold piece, 1612.9032 milligrammes, to be the unit with its multiples." In conforming the weight of the Sovereign to that of the 25-Franc piece, it would require a reduction of .8786% (about $\frac{7}{8}$ ths %) and a reduction of 3.5237% (about $3\frac{1}{2}$ %) from the Half-Eagle to conform it to the French coin.

According to this proposition, the several denominations of U. S. gold coins would weigh as follows:

	Milligrammes. Dec.	Grains. Dec.	Present Weight. Grains. Dec.
The Dollar	1612.9032 =	24.890885	25.8
Qr.-Eagle	4032.2581 =	62.227212	64.5
3 Dollar Piece	4838.7097 =	74.672655	77.4
Half-Eagle	8064.5161 =	124.454423	129
Eagle	16129.0322 =	248.908847	258
Double Eagle	32258.0644 =	497.817693	516

By a slight modification of these terms, substituting 1620 milligrammes as the weight of the franc gold piece and of the gold dollar, all the denominations of French, British and U. S. gold coins could be expressed in *whole* numbers, thereby facilitating their adjustment and calculation.

The present ratio of Gold to Silver is about 1 to 16 (1 to 15.988371). If the weight of the gold dollar were fixed at 1620 milligrammes or 25 troy grains, the above *ratio* would be maintained by reducing the weight of the silver dollar from 412.5 grains to 400 grains, or one-fourth of one cent to the grain, the new weight of the gold dollar being four cents to the grain. This relation of weight to value furnishes an easy method of determining the amount of United States gold and silver coins exchangeable for old coins.

By this plan, the increase in the weight of the French coin would be $\frac{44}{100}\%$, the decrease in that of the British coin .4439% (about $\frac{44}{100}\%$), while the weight of U. S. gold coins would be reduced (3.1007) about $3\frac{1}{10}\%$.

OPINIONS OF THE PRESS.

THE BULLION DEALER'S GUIDE, by Geo. W. Edelman, Deputy Treasurer United States Assay Office, New York, 1868, is just published by J. K. Van Slyke & Co., No. 3 Broad street. This small, elegantly printed volume, deserves the attention of business men. It presents, in the compass of thirty pages, the results of a vast amount of calculation of weight, fineness and value of gold and silver bullion, enabling the dealer in bullion to find at a glance just what he needs to know, in order to regulate wisely his transactions in coin or bullion. For example, a single line in Table B of Mr. Edelman's Book tells exactly what one thousand ounces of silver bullion at any fineness will produce, at the Mint or Assay Office, in either fine bars, dollars or silver coins. If any one attempts to calculate all this, he will see what a vast amount of faithful labor Mr. Edelman has put into this single page of his book. Table C is equally condensed and valuable, exhibiting at a glance the gain or loss, according to fineness, upon gold bars containing silver, when deposited at the Assay Office or Mint. Table D gives the weight and fineness of every coin of the United States, from 1792 to the present time, presenting in a condensed form matter of great historical as well as financial interest. Indeed, all the tables in the book are models of concise accuracy, and the whole exhibits an intelligent comprehension of the subjects treated, and thorough fidelity in the manner of presenting them. It is evidently the right book by the right man; and Messrs. Duncan, Sherman & Co., Aug. Belmont & Co., Brown Brothers & Co., and other eminent bankers, are right in "recommending it as the most valuable and correct work of the kind ever published."—*N. Y. Evening Post*.

The attention of bankers, bullion dealers, and merchants generally, who are interested in the assay or handling of coin and bullion, is directed to a new publication by George W. Edelman, the well known Deputy Treasurer of the Assay Office in this city. It is endorsed by the first bankers in the city, and to those in active business will save more than its cost, each day in the year.—*N. Y. Journal of Commerce*.

Mr. George W. Edelman, of the United States Assay Office, has just published the BULLION DEALER'S GUIDE, containing a series of tables which show the values of all kinds and grades of coin and bullion, with minute explanations of their use. It is much the most careful and accurate work of the kind extant, and will be found indispensable to all who buy or sell foreign coins or bars.—*N. Y. Evening Post*.

MR. GEORGE W. EDELMAN, Deputy Treasurer of the United States Assay Office, in this city, has compiled a very thorough guide for dealers in bullion, explanatory of the value of the precious metals in the various changes which they undergo after they have been taken from the mines, and resulting from their being melted, refined, or coined. The aim of the work is to enable the bullion dealer to determine the form into which he will convert his bullion so as to yield him the most satisfactory return. The work consists of a series of pertinent tabular exhibits, accompanied by the necessary illustrative notes. Other tables, apposite to the nature and object of the work, are appended. The book, under the title of THE BULLION DEALER'S GUIDE, is handsomely issued by Messrs. George F. Nesbitt & Co. It is emphatically recommended by some of the leading city bankers and dealers in bullion.—*N. Y. Times*.

Tables I., J. & K. and Section 6th (See Introduction) present additional matter not found in the first edition.

